
WHITE MOUNTAIN
BIODIESEL
LLC

Diesel at a Glance

In 1898, Rudolf Diesel
was granted patent for an
"internal combustion engine" The Diesel Engine

The diesel engine has the benefit of running more efficiently than gasoline engines due to much higher compression ratios and longer duration of combustion.

Rudolf was interested in using Vegetable Oil as fuel to run “The Diesel Engine”
In fact, the original Diesel Engine was run on peanut oil.

Now with rises in fuel prices, concerns about oil reserves, increased technology and dependency on Foreign Oil the movement for certified alternative fuels such as biodiesel have heightened in demand.

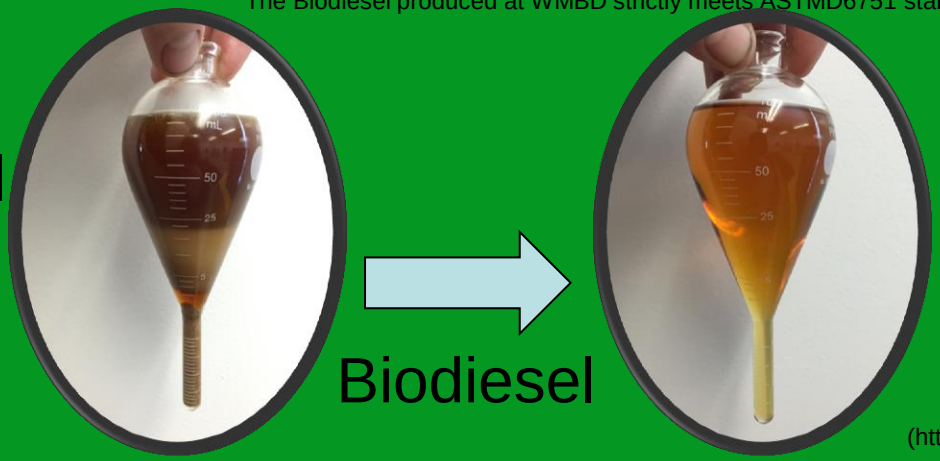
What is Biodiesel?

- Biodiesel refers to a vegetable oil- or animal fat-based diesel fuel consisting of long-chain alkyl (methyl, propyl or ethyl) esters. Biodiesel is typically made by chemically reacting lipids (e.g., vegetable oil, animal fat (tallow)) with an alcohol.

- Biodiesel is meant to be used in standard diesel engines and is thus distinct from the vegetable and waste oils used to fuel *converted* diesel engines. Biodiesel can be used 100% biodiesel or blended down to lower percentages with low sulfur petroleum diesel.

The Biodiesel produced at WMBD strictly meets ASTMD6751 standards.

Dirty Used Cooking Oil



Biodiesel

(http://en.wikipedia.org/wiki/Biodiesel)

How is Biodiesel Used

- Biodiesel is one of the most clean burning fuels to date.
- It is utilized in the U.S. on a daily basis for transportation, heating fuel, jet fuel and several diesel engine equipment.
- It is also a great solvent used for cleaning.
- Life time expectancy for diesel engines and components has more than doubled due to the lubricity properties of Biodiesel

WMBD GOALS FOR USING TRANSESTERIFICATION

- Decrease our dependency on Foreign Oil
- Create Jobs
- Decrease Greenhouse Gasses By Up To 80%
- Convert Used Cooking from Local Restaurants Into, clean Fuel for families and businesses In the North East.
- Decrease carbon footprint

Cradle To Grave In The US

Used Cooking Oils

Leftover seed Oil from crops

WMBD uses Muliti-Feedstocks such as Used Cooking Oils, Soybean Oil and Canola Oil to produce 18,000 gallons of Biodiesel on a daily schedule selling it to New England fuel Distributors.

Start Up

2009-2010

A-Building

Before/After Tanks

Distillation

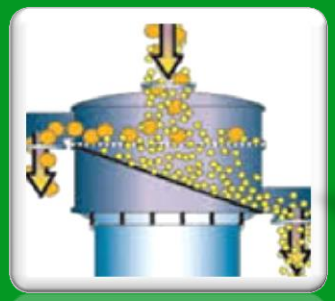
Pipe fitting

What happens to the oil once it gets to the plant?

1.Oil Is heated to 160$_F$

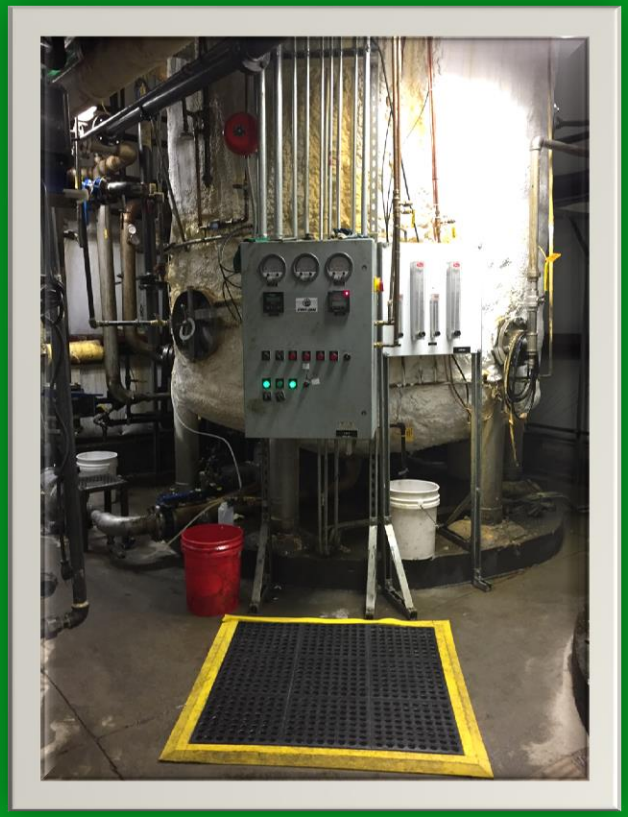
water and solids are settled out

2.Sweco Screen - filters particulates out of the oil to 250 microns

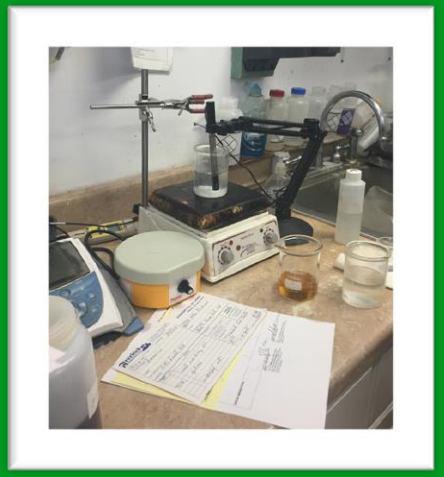


3.Centrifuge - separates water from oil

Main Reaction



1. Feedstock is mixed with catalyst and methanol in a 9000 galonl reactor tank. This creates Biodiesel and converts any left over FFA (Free Fatty Acids) to soap and glycerin.



2. The Biodiesel is than settled and tested for conversion.

3. During transfers glycerin and Biodiesel are sent to the correct production lines

Transfers From Main Reaction

Biodiesel Washing and Polishing

Recycled H20 is sprayed into the tank to wash the Biodiesel

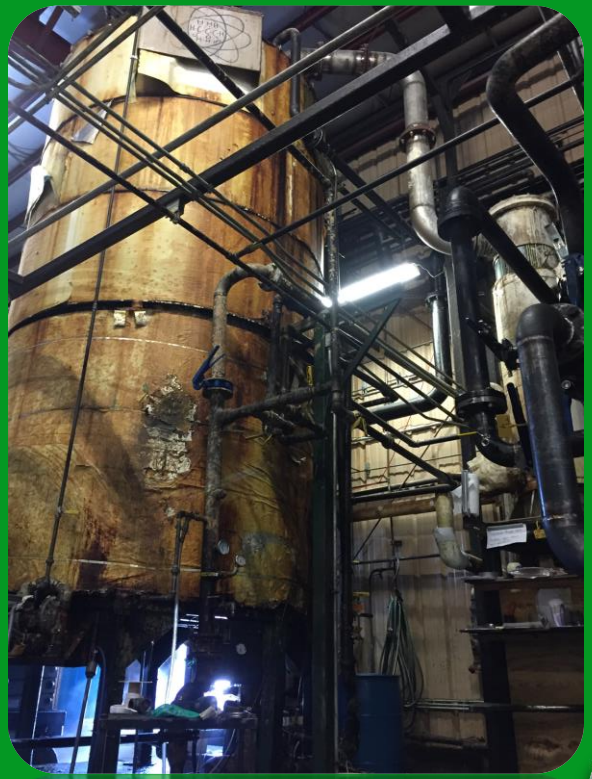
Filtration to 5Micron

Ion Exchange Resin Polishing Column

Flash Evaporator
Removes any moisture And left over Methanol

Glycerin and Mong are sent to a 3,000gal batch still for crude distillation recovery of MeOh and to create boiler fuel

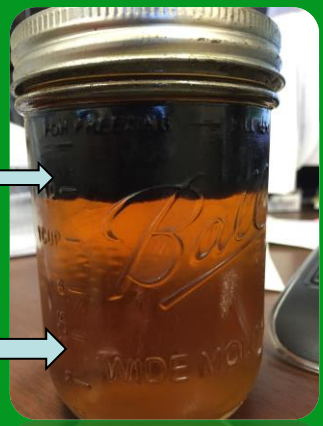
Glycerin Still



Methanol and glycerin are sent to a batch still distillation column. Where crude MEOH is recovered and then sent for further distillation at MD1. This is also where we create MONG. WMBD's fuel source to heat the reaction process.

MONG →

Glycerin →



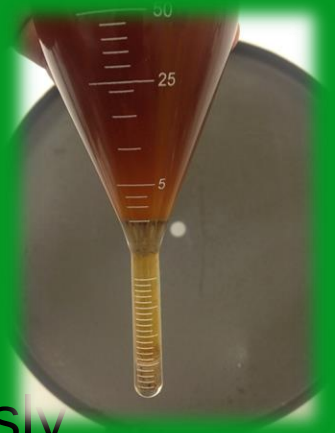
M.O.N.G.
Material Organic Non Glycerin

Methanol Still

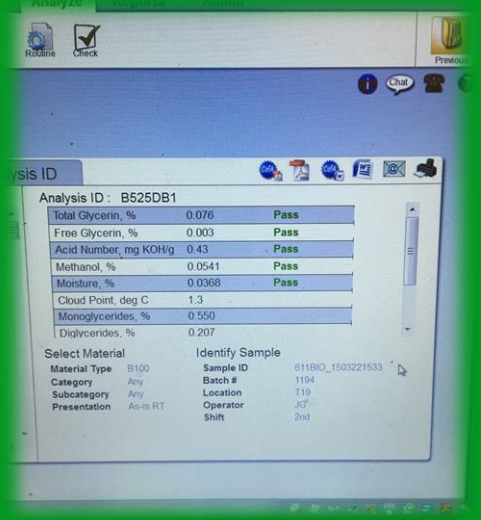
Separates the Water and Methanol

WMBD reclaims up to 99% of unused methanol through distillation for use on the next batch.

Lab Testing



All processes are continuously tested at the facility and with 3rd party sources.
WMBD holds their fuel to the highest standards.



Stored Used Cooking Oil On Loading Dock

Why Use Biodiesel?

Biodiesel is Economical

If you make biodiesel at home, you can save more than 50% of your petro diesel expenses. The fact that making biodiesel procedure is an easy process encourages more and more people to use biodiesel.

Biodiesel Resources are Reproducible

Biodiesel is produced from vegetable oil or animal fat. These resources can be regrown and considered infinite in comparison to crude oil that is limited. When using biodiesel instead of petro-diesel, the demand for crude oil products is reduced and as a result the prices decrease.

Biodiesel is more Environment Friendly then other Energy Alternatives

While using biodiesel the exhaust emission is significantly less polluting. According to studies, there are several parameters like hydrocarbons and carbon dioxide that are reduced when using biodiesel for running diesel engines.

Supporting Agriculture Industry

The main ingredient for preparing biodiesel is vegetables oil or animal fat. With the growth of use of biodiesel going on, there is a growing need for the main biodiesel resources which are the seeds like canola, corn, soy and others. The growing demand of biodiesel resources enables the agriculture in general and the farmers in particular to have another market to sell to. This way the industry is more stabilized.

Reducing Dependence on Petro-diesel and Fuel Companies

The more we use biodiesel instead of petro-diesel the less dependent we are in an infinite resource (crude oil). It means that these crude oil companies and in many cases countries, have less domination on other countries in the aspect of energy resources. This will lead for a better balanced world.

Blends of Biodiesel for your Home and Auto

- B5= 5% Biodiesel is used in most winter months.
- B20= 20% Biodiesel is an acceptable fuel to use in almost every diesel engine vehicle.
- B99.9=99.9% Biodiesel recommended for heating homes for spring summer and fall.

Common Misconceptions

1. Modification of all engines is a must is a must in using Biofuel
2. Biofuel must be subsidized to be affordable
3. Biodiesel will completely replace conventional fuel
4. Biodiesel generates a small amount of energy than what
5. It takes to produce
6. It doesn’t work in cold weather
7. Bio ruins ur engine and clogs filters
8. Biodiesel and straight vegetable oil are the same thing
9. Biodiesel has no minimum standards